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# **Appendix: Expert Committee Recommendations on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity**

**June 6, 2007**

## **Assessment Recommendations**

- 1) The Expert Committee recommends that physicians and allied healthcare providers perform, at a minimum, a yearly assessment of weight status in all children, and that this assessment include calculation of height, weight (measured appropriately), and body mass index (BMI) for age and plotting of those measures on standard growth charts.
- 2) With regard to classification, the Expert Committee recommends that:
  - a) Individuals from the ages of 2 to 18 years, with a BMI  $\geq$  95<sup>th</sup> percentile for age and sex, or BMI exceeding 30 (whichever is smaller), should be considered obese.
  - b) Individuals with BMI  $\geq$  85<sup>th</sup> percentile, but  $<$  95<sup>th</sup> percentile for age and sex, should be considered overweight, and this term replaces “at risk of overweight.”
- 3) The Expert Committee recommends use of the 99<sup>th</sup> percentile of BMI for age cut-offs (indicate by using a table with cutpoints for the 99<sup>th</sup> percentile BMI by age and gender) to allow for improved accessibility of the data in the clinical setting and for additional study.
- 4) The Expert Committee recommends against routine clinical use of skinfold thickness in the assessment of obesity in children.
- 5) The Expert Committee was unable to recommend the use of waist circumference for routine clinical use at the present time because of incomplete information and lack of specific guidance for clinical application.
- 6) The Expert Committee recommends that qualitative assessment of dietary patterns of all pediatric patients be conducted, at a minimum, at each well child visit for anticipatory guidance, and that assessment include the following areas:
  - a) Self-efficacy and readiness to change:
  - b) Identification of the following specific dietary practices, which may be targets for change
    - i) Frequency of eating outside the home at restaurants or fast food establishments
    - ii) Excessive consumption of sweetened beverages
    - iii) Consumption of excessive portion sizes for age
  - c) Additional practices to be considered for evaluation during the qualitative dietary assessment include:
    - i) Excessive consumption of 100% fruit juice
    - ii) Breakfast consumption (frequency and quality)
    - iii) Excessive consumption of foods that are high in energy density
    - iv) Low consumption of fruits and vegetables

- v) Meal frequency and snacking patterns (including quality)
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- 7) The Expert Committee recommends that assessment of levels of physical activity and sedentary behaviors should be performed in all pediatric patients at a minimum, at each well child visit for anticipatory guidance, and should include these general areas:
    - a) Self-efficacy and readiness to change
    - b) Environment and social support and barriers to physical activity
    - c) Whether the child is meeting recommendations of 60 minutes of at least moderate physical activity per day
    - d) Level of sedentary behavior, which should include hours of behavior such as television and/or DVD watching, playing video games, and using the computer, and comparison to a baseline of <2 hours per day
  - 8) The Expert Committee recommends that physicians and other allied healthcare providers obtain a focused family history for obesity, type 2 diabetes, cardiovascular disease (particularly hypertension), and early deaths from heart disease or stroke to assess risk of current or future comorbidities associated with a child's overweight or obese status.
  - 9) The Expert Committee recommends a thorough physical examination and that for a child identified as overweight or obese, the following areas be included in addition to the aforementioned recommendations on BMI:
    - a) *Waist circumference is increasingly being invoked as an indicator of insulin resistance and other comorbidities of obesity, and may be useful to characterize risk in the obese child. Because of the difficulty in measuring and the uncertainty of appropriate cut-offs, however, routine use is not recommended at this time.*
    - b) Pulse
      - i) Measured in the standard pediatric manner
    - c) Blood pressure
      - i) Measured with a large enough cuff so that 80% of the arm is covered by the bladder of the cuff

- d)** Signs associated with comorbidities of overweight and obesity (per Assessment Report and Table 7 in that report)
- 10) The Expert Committee recommends that the following laboratory tests be considered in the evaluation of a child identified as overweight or obese:
- a)** If the BMI for age and sex is:
    - i)** 85<sup>th</sup> to 94<sup>th</sup> percentile with no risk factors: fasting lipid profile
    - ii)** 85<sup>th</sup> to 94<sup>th</sup> percentile with risk factors in history or physical examination, obtain in addition: aspartate aminotransferase (AST) and alanine aminotransferase (ALT), fasting glucose
    - iii)** greater than the 95<sup>th</sup> percentile, even in the absence of risk factors: all of the tests listed under ii., plus blood urea nitrogen (BUN) and creatinine
  - b)** Guidelines for laboratory assessment and testing are also provided for more detailed evaluation, typically performed and interpreted by subspecialists (see Assessment Report and Table 9 in that report)

## **Treatment Recommendations**

1. The Expert Committee recommends that all physicians and healthcare providers should address weight management and lifestyle issues with all patients regardless of presenting weight, at a minimum, each year.
2. The Expert Committee recommends that all children between 2 and 18 years of age with BMI between the 5<sup>th</sup> and 84<sup>th</sup> percentile should follow the recommendations for prevention as outlined in the Prevention Report.
3. The Expert Committee recommends that the treatment of overweight children be approached in a staged method based upon the child's age, BMI, any related comorbidities, weight status of parents, and progress in treatment, and that the child's primary caregivers/families be involved in the process.
4. The Expert Committee recommends the following staged approach for children between the ages of 2 and 19 years and whose BMI is above the 85<sup>th</sup> percentile:

**Stage 1. Prevention Plus protocol:** These recommendations can be implemented by the primary care physician or allied healthcare provider who has some training in pediatric weight management/behavioral counseling. Stage 1 recommendations include:

- i. Dietary habits and physical activity:
  1. Five or more servings of fruits and vegetables per day
  2. Two or fewer hours of screen time per day, and no television in the room where the child sleeps
  3. One hour or more of daily physical activity
  4. No sugar-sweetened beverages
- ii. Patients and families of the patient be counseled to facilitate these eating behaviors:
  1. Eating a daily breakfast
  2. Limiting meals outside of the home
  3. Family meals should happen at least 5-6 times per week
  4. Allowing the child to self-regulate his or her meals and avoiding overly restrictive behaviors
- iii. Within this category, the goal should be weight maintenance with growth that results in a decreasing BMI as age increases. Monthly follow-up.
- iv. After 3-6 months, if no improvement in BMI/weight status has been noted, advancement to Stage 2 is indicated and based on patient/family readiness to change.

**Stage 2. Structured Weight Management protocol.** These recommendations can be implemented by a primary care physician or allied healthcare provider highly trained in weight management. Stage 2 recommendations include:

- i. Dietary and physical activity behaviors;
  - 1. Development of a plan for utilization of a balanced macronutrient diet emphasizing low amounts of energy-dense foods
  - 2. Increased structured daily meals and snacks
  - 3. Supervised active play of at least 60 minutes per day
  - 4. Screen time of 1 hour or less per day
  - 5. Increased monitoring (eg, screen time, physical activity, dietary intake, restaurant logs) by provider, patient and/or family
- ii. Within this category, goal should be weight maintenance that results in a decreasing BMI as age and height increases; however, weight loss should not exceed 1 lb/month in children aged 2-11 years, or an average of 2 lb/wk in older overweight/obese children and adolescents.
- iii. If no improvement in BMI/weight after 3-6 months, patient should be advanced to Stage 3

**Stage 3. Comprehensive Multidisciplinary protocol.** At this level of intervention, the patient should optimally be referred to a multidisciplinary obesity care team.

- i. Eating and activity goals are the same as in Stage 2
  - ii. Activities within this category should also include:
    - 1. Structured behavioral modification program, including food and activity monitoring and development of short-term diet and physical activity goals
    - 2. Involvement of primary caregivers/families for behavioral modification in children under age 12 years and training of primary caregivers/families for all children
  - iii. Within this category, goal should be weight maintenance or gradual weight loss until BMI less than 85<sup>th</sup> percentile and should not exceed 1 lb/month in children aged 2-5 years, or 2 lbs/wk in older obese children and adolescents.
5. The Expert Committee recommends the following for children with BMI > 95<sup>th</sup> percentile, with significant comorbidities and who have not been successful with Stages 1-3 or children > 99<sup>th</sup> percentile who have shown no improvement under Stage 3 (Comprehensive Multidisciplinary Intervention):

**Stage 4. Tertiary Care protocol.** Referral to pediatric tertiary weight management center with access to a multidisciplinary team with expertise in childhood obesity and which operates under a designed protocol.

1. This protocol should include continued diet and activity counseling and the consideration of such additions as meal replacement, very-low-calorie diet, medication, and surgery.
6. The Expert Committee recommends that the following weight loss targets should be considered when implementing the staged treatment plan:

#### **Age 2-5 Years**

85<sup>th</sup>-94<sup>th</sup> BMI

Weight maintenance until BMI < 85<sup>th</sup> percentile or slowing of weight gain as indicated by downward deflection in BMI curve.

≥ 95<sup>th</sup>

Weight maintenance until BMI < 85<sup>th</sup> percentile; however if weight loss occurs with a healthy and adequate caloric diet it should not exceed 1 lb/month. If greater loss is noted, monitor for causes of excessive weight loss.

BMI (>21 or 22)

(Rare, very high) Gradual weight loss, not to exceed 1 lb/mo. If greater loss occurs, monitor for causes of excessive weight loss.

#### **Age 6-11 Years**

85<sup>th</sup> -94<sup>th</sup> BMI

Weight maintenance until BMI < 85<sup>th</sup> percentile or slowing of weight gain as indicated by downward deflection in BMI curve.

95<sup>th</sup> -98<sup>th</sup> BMI

Weight maintenance until BMI < 85<sup>th</sup> or gradual weight loss of approximately 1 lb/month. If greater loss is noted, monitor for causes of excessive weight loss.

≥ 99<sup>th</sup> BMI

Weight loss not to exceed an average of 2 lb/wk. If greater loss is noted, monitor for causes of excessive weight loss.

#### **Age 12-18 Years**

85<sup>th</sup> – 94<sup>th</sup> BMI

Weight maintenance until BMI < 85<sup>th</sup> percentile, or slowing of weight gain as indicated by downward deflection in BMI curve.

95<sup>th</sup> -98<sup>th</sup> BMI

Weight loss until BMI < 85th percentile--no more than an average of 2 lbs/wk. If greater loss is noted, monitor for causes of excessive weight loss.

≥99<sup>th</sup> BMI

Weight loss not to exceed an average of 2lb/wk. If greater loss is noted, monitor for causes of excessive weight loss.

7. The Expert Committee recommends that in children aged 12-18 years, with BMI greater than the 99<sup>th</sup> percentile, primary care physicians and other allied healthcare providers may begin treatment with stages 1, 2, or 3 as indicated based on patient/family readiness to change.

### **Prevention Recommendations**

1. The Expert Committee recommends that physicians and allied healthcare providers counsel the following:
  - a. For children aged 2-18 years whose BMI is at or above the 5<sup>th</sup> percentile and no greater than the 84<sup>th</sup> percentile:
    - i. **Dietary Intake:**
      1. Limiting consumption of sugar-sweetened beverages and encouraging consumption of diets with recommended quantities of fruits and vegetables.
    - ii. **Physical Activity:**
      1. Limiting television and other screen time to 1 or 2 hours per day in children starting as young as age 5 years, as advised by the American Academy of Pediatrics and removing television and computer screens from children's primary sleeping area.
    - iii. **Eating Behaviors:**
      1. Eating breakfast daily.
      2. Limiting eating out at restaurants, particularly fast food restaurants.
      3. Encouraging family meals in which parents and children eat together.
      4. Limiting portion size.
2. The Expert Committee recommends that physicians, allied healthcare professionals, and professional organizations advocate for:
  - a. The federal government to increase physical activity at school through intervention programs as early as grade 1 through the end of high school and college, and through creating school environments that support physical activity in general.
  - b. Supporting efforts to preserve and enhance parks as areas for physical activity, informing local development initiatives regarding the inclusion of walking and bicycle paths, and promoting families' use of local physical activity options by making information and suggestions about physical activity alternatives available in doctors' offices.
3. The Expert Committee recommends using the following techniques to aid physicians and allied healthcare providers who may wish to support obesity prevention in clinical, school, and community settings:
  - a. Actively engaging families with parental obesity or maternal diabetes, because these children are at increased risk for developing obesity even if they currently have normal BMI.

- b. Encouraging an authoritative<sup>\*</sup> parenting style in support of increased physical activity and reduced sedentary behaviour, providing tangible and motivational support for children.
  - c. Discouraging a restrictive<sup>†</sup> parenting style regarding child eating.
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- d. Encouraging parents to model healthy diets and portion sizes, physical activity, and limited television time.
  - e. Promoting physical activity at school and in child care settings (including after school programs), by asking children and parents about activity in these settings during routine office visits.
4. The Expert Committee suggests that children of healthy weight participate in 60 minutes of moderate to vigorous physical activity daily.
- i. The 60 minutes can be accumulated throughout the day, as opposed to only single or long bouts.
  - ii. Ideally, such activity should be enjoyable to the child
  - iii. Whereas some health and psychological benefits may be attained by achieving the 60 minute goal, greater duration should yield increased benefit
5. The Expert Committee also suggests counselling patients and families to perform these behaviors:
- i. Dietary Intake:**
    - 1. Eating a diet rich in calcium
    - 2. Eating a diet high in fiber
    - 3. Eating a diet with balanced macronutrients (calories from fat, carbohydrate, and protein in proportions for age recommended by Dietary Reference Intakes)
    - 4. Encouragement, support, and maintenance of breastfeeding
  - ii. Eating Behaviors:**
    - 1. Limiting consumption of energy-dense foods.

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<sup>\*</sup> *Authoritative parents* are both demanding and responsive. "They monitor and impart clear standards for their children's conduct. They are assertive, but not intrusive and restrictive. Their disciplinary methods are supportive, rather than punitive. They want their children to be assertive as well as socially responsible, and self-regulated as well as cooperative" ([Baumrind, 1991, p. 62](#)).

<sup>†</sup> *Restrictive parenting* (heavy monitoring and controlling of a child's behavior)